



**Course Unit: 935024 - Packing and Storage**

Year 2 Semester 4 ISCED Code: 721 ECTS: 5.0

**Type of Course Unit:** Compulsory **Delivery Mode:** Face-to-face **Language of Instruction:** Portuguese

**COURSE COORDINATOR:** Isabel Maria Pereira Caldas Baer

**HOURS OF WORK**

TOTAL HOURS	Contact Hours								Hours in autonomous work
	Theory	Theory and practice	Practical and laboratory work	Field work	Seminar	Internship	Tutorial guidance	Other	
125		45							80

Prerequisites (if applicable): Not applicable

**LEARNING OUTCOMES (knowledge, skills and competence)**

Knowledge of materials, equipment and packaging systems and packaging of food products. Quality control and fulfillment of national and international rules of packaging, labeling and environment protection.

**CONTENTS**

The packaging of food products. Types of packaging, packaging formats and function. Metal packaging, glass containers, cardboard, wood, plastic, metal (cans) and complex. Production, properties, specifications and quality control. Intelligent and eatable packages. Capsules and corks. Fillers, tin stick equipment, capping. Control of tin sticking, defects and causes. Drums. Aseptic filling systems: packaging materials and equipment. Corrugated cardboard. Wooden containers. Monitoring and testing of packaging. Labeling, legislation (PL / I) and regulations. Storage and transportation of refrigerated and frozen products: air conditioned chambers and cooling processes of products of plant and animal origin.

**DEMONSTRATION OF THE CONTENTS COHERENCE WITH THE COURSE UNIT'S LEARNING OUTCOMES**

The knowledge of various types of packaging materials and methods / equipment used in the food industry as well as European legislation regarding labeling and environment provides students with the necessary tools to decide the best material and method of packaging and storage for different food products of animal and vegetable origin obtained in industry, according to their physical and chemical composition, as well as all legal requirements for placing products on the market.

**TEACHING METHODOLOGIES**

Lectures and practical classes, control applications and research of material, process and packaging equipment; research oriented articles.

**DEMONSTRATION OF THE COHERENCE BETWEEN THE TEACHING METHODOLOGIES AND THE LEARNING OUTCOMES**

The research work during classes based on existing literature and application of existing legislation allows the student to become familiar in practice with the rules to follow in packaging and placing products on the market and be aware of the variety of food available and their suitability for different packaging materials.

**EVALUATION METHODS**

The assessment consists of making an individual assignment with oral presentation and report (50%) for admission to the final exam (50%).

**MAIN BIBLIOGRAPHY**

INSTITUTO APPERT. Tabelas de esterilização das conservas alimentares em embalagens metálicas. ORMIS. Alcochete.

Castro AG, Pouzada AS (2003) Embalagens para a Industria Alimentar. Instituto Piaget. Lisboa.

INF (1980) Recomendações para o tratamento, conservação e transporte pelo frio de alimentos perecíveis. MCT. Instituto Nacional do Frio. Lisboa.

INSTITUTO APPERT. Tabelas de esterilização das conservas alimentares em embalagens metálicas. ORMIS. Alcochete.

Kadoya T (1990) Food Packaging. Academic Press. London.

Madrid A, Pastrana G, Santiago F e Madrid JM (1997) Refrigeración, congelación y envasado de los alimentos. Ed Mundi Prensa. Zaragoza,.

ORMIS. Manual de cravação. ORMIS. Alcochete.

Poças MFF, Oliveira FAR J (1997) A embalagem de produtos alimentares. FIPAgro-alimentares. Lisboa.

PONTO VERDE (2006) [www.pontoverde.pt](http://www.pontoverde.pt)

TETRA PAK PORTUGAL (s/d) Formação e verificação de embalagens Tetra Brik Aseptic. Tetra Pak Portugal.

Year of implementation: 2014/2015 | Date of approval by the Technical-Scientific Board: 2012-10-10